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Washington, D.C. 20231

From: Michael G. Smith  
Reg. 45,368  
Ramirez and Smith  
1090 Vermont Ave. NW., #800  
Washington, DC. 20005  
(202) 595-1444 x2

Application: 09/760,908  
Title: Tuning means for stringed musical instrument  
Art Unit: 2837  
Examiner: Kimberly Lockett  
Phone: 571-272-2067  
Fax: 571-273-2067

Box AF  
Assistant Commissioner for Patents  
Washington, D.C. 20231

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Attorney Michael G. Smith

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## CLEAN VERSION OF CLAIMS

Claim 21 A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head, said at least one string having a first end and a second end,
- a first mechanism on said head for supporting and forming a first critical point for said at least one string,
- a second mechanism on said body for supporting and forming a second critical point for said at least one string,
- said first end secured to said head and said second end secured to said body, and
- a tuning adjustment device comprising:
  - a first portion to tension said at least one string to playing pitch from an untensioned condition to at least one pitch tuning quickly, and
  - a second portion to further tension said at least one string at playing pitch,
- wherein said second portion is in close proximity to said first portion.

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Claim 22 An apparatus of claim 21 wherein said tuning adjustment device is located on said body, and said tuning adjustment device further comprising: at least one anchor connected with said second end, and at least one third portion for pivoting said at least one anchor about an axis that is transverse to the axis of said at least one string in a first direction to tension said at least one string to said at least one pitch tuning.

Claim 23 An apparatus of claim 21 wherein said tuning adjustment device is located on said head, and said tuning adjustment device further comprises: at least one anchor connected with said first end, and at least one third portion for pivoting said at least one anchor about an axis that is transverse to the axis of said at least one string in a first direction to tension said at least one string to said at least one pitch tuning.

Claim 24 Apparatus of claim 23 wherein said tuning adjustment device further comprises at least one lock to impede pivoting said at least one third portion in a second direction.

Claim 25 Apparatus of claim 24 wherein said at least one lock allows pivoting of said at least one third portion in said first direction while impeding pivoting of said at least one third portion in said second direction.

Claim 26 Apparatus of claim 24 wherein said at least one lock further comprises a plurality of spaced-apart stops to impede pivoting said at least one third portion in said second direction.

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Claim 27 Apparatus of claim 24 wherein said at least one lock further comprises at least one tooth formed on said at least one third portion that cooperates with at least one tooth to impede pivoting said at least one third portion in said second direction.

Claim 28 Apparatus of claim 23 wherein said second portion further comprises at least one tuner to vary the tension of said at least one string while said at least one third portion is in a locked position.

Claim 29 Apparatus of claim 28 wherein said at least one tuner further comprises a thumbscrew.

Claim 30 Apparatus of claim 28 wherein said at least one tuner further comprises a continuously variable element to continuously vary the tension in said at least one string.

Claim 31 Apparatus of claim 28 wherein said at least one tuner adjusts the position of said anchor.

Claim 32 Apparatus of claim 23 further comprising:  
a nut, and  
a bridge,  
wherein said nut comprises said first critical point and said bridge  
comprises said second critical point,  
wherein said at least one anchor is adjacent said nut opposite said second  
critical point.

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Claim 33 Apparatus of claim 23 further comprising:

a nut, and

a bridge,

wherein said nut further comprises said first critical point and said bridge

further comprises said second critical point,

wherein said a least one anchor further comprises said nut opposite said second critical point.

Claim 34 Apparatus of claim 23 wherein said at least one third portion further comprises an L-shaped elongated member.

Claim 35 Apparatus of claim 22 further comprising:

a nut, and

at least one bridge,

wherein said nut further comprises said first critical point and said at least

one bridge further comprises said second critical point for said at

least one string,

wherein said at least one anchor is adjacent said at least one bridge opposite

said first critical point and moveable therewith about said axis that is

transverse to said axis of said at least one string.

Claim 36 Apparatus of claim 22 further comprises:

a nut, and

at least one bridge,

said nut further comprises said first critical point and said at least one

bridge further comprises said second critical point for said at least

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one string, said bridge having a surface extending generally in the direction of said axis of said at least one string, wherein said at least one anchor further comprises said at least one bridge opposite said first critical point.

Claim 37 Apparatus of claim 36 wherein said second critical point has at least one location on said at least one bridge, said at least one bridge having a curved surface, said at least one bridge being pivotably displaceable about said axis that is transverse to the axis of said at least one string, said second critical point travels a critical distance on said curved surface of said at least one bridge changing said at least one location of said second critical point establishing harmonic tuning at said playing pitch as said at least one bridge is pivoted by tensioning said at least one string to said at least one pitch tuning.

Claim 38 Apparatus of claim 37 wherein said tuning adjustment device further comprises at least one lock to impede pivoting said at least one third portion in a second direction.

Claim 39 Apparatus of claim 38 wherein said at least one lock allows pivoting of said at least one third portion in said first direction while impeding pivoting of said at least one third portion in said second direction.

Claim 40 Apparatus of claim 32 wherein said at least one third portion further comprises an elongated lever.

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Claim 41 Apparatus of claim 39 wherein said tuning adjustment device further comprises a tremolo.

Claim 42 Apparatus of claim 37 wherein said tuning adjustment device further comprises a fulcrum tremolo.

Claim 43 Apparatus of claim 22 wherein said tuning adjustment device further comprises a macro-tuner.

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Claim 44 A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head,
- said at least one string having a first end and a second end,
- a first mechanism on said head to support and form a first critical point for  
said at least one string,
- a second mechanism on said body to support and form a second critical  
point for said at least one string,
- said first end secured to said head and said second end secured to said  
body,
- at least one string anchor located opposite said body on said head, and
- a tuning adjustment device combining
  - a first portion to quickly tension said at least one string to playing  
pitch from an untensioned condition at said at least one of  
several pitch tunings,
  - a second portion to fine tune said at least one string at said playing  
pitch, and
  - at least one gripping portion intermediate said nut and said at least  
one string anchor for gripping said at least one string,
- wherein said first portion, said second portion, and said at least one  
gripping portion and are in close proximity to each other.

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Claim Listing under 37 C.F.R. 1.121(c):

Amend claims 21-28, 32-40 and 44-46 as follows and in accordance with 37 C.F.R. 1.121(c), by which the Applicant submits the following marked up version only for claims being changed by the current amendment, wherein the markings are shown by strikethrough (for deleted matter) and/or underlining (for added matter).

**Amendment to Claims**

Claim 21 (currently amended) A stringed musical instrument comprising:

a body,  
a neck extending outwardly from said body,  
a head located opposite said body on said neck,  
at least one string extending from said body to said head, said at least one  
string having a first end and a second end, [means]  
a first mechanism on said head for supporting and forming a first critical  
point for said at least one string, [ means]  
a second mechanism on said body for supporting and forming a second  
[first] critical point for said at least one string,  
said first end secured to said head and said second end secured to said  
body, and  
[wherein said stringed musical instrument includes ]a tuning adjustment  
device comprising:  
a first portion [means for]to tension[bringing] said at least one string  
to [proper] playing pitch from an untensioned condition to at  
least one pitch tuning quickly, and

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a [separate means ]second portion [whereby said at least one string is  
] to further tension said at least one string[pitch tuned] at[ said  
proper] playing pitch,  
wherein said second portion is in close proximity to said first  
portion.

Claim 22 (currently amended) An apparatus of claim 21 wherein said tuning  
adjustment device is located on said body, and said tuning adjustment  
device further compris[ing]es:[ ]  
at least one anchor connected with said second end, and  
at least one[ additional separate means] third portion for pivoting said at  
least one anchor about an axis that is transverse to the axis of said at  
least one string in a first direction [for]to tension[ing] said at least  
one string to said at least one pitch tuning.

Claim 23 (currently amended) An apparatus of claim 21 wherein said tuning  
adjustment device is located on said head, and said tuning adjustment  
device further compris[ing]es:[ ]  
at least one anchor connected with said first end, and at least one  
[additional separate means ]  
third portion for pivoting said at least one anchor about an axis that is  
transverse to the axis of said at least one string in a first direction  
[for]to tension[ing] said at least one string to said at least one pitch  
tuning.

Claim 24 (currently amended) Apparatus of claim 23 wherein said tuning  
adjustment device further comprises at least one lock to impede pivoting

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said at least one [additional separate means ]third portion in a second direction.

Claim 25 (currently amended) Apparatus of claim 24 wherein said at least one lock allows pivoting of said at least one [second separate means ]third portion in said first direction while impeding pivoting of said at least one [additional separate means ]third portion in said second direction.

Claim 26 (currently amended) Apparatus of claim 24 wherein said at least one lock further comprises a plurality of spaced-apart stops to impede pivoting said at least one [additional separate means ]third portion in said second direction.

Claim 27 (currently amended) Apparatus of claim 24 wherein said at least one lock further comprises at least one tooth [a plurality of teeth ]formed on said at least one [second separate means ]third portion that cooperates with at least one tooth to impede pivoting said at least one [additional separate means ]third portion in said second direction.

Claim 28 (currently amended) Apparatus of claim 23 wherein said [separate means ]second portion further comprises at least one tuner [for varying]to vary the tension of said at least one string while said at least one [additional separate means]third portion is in a [fixed location]locked position.

Claim 29 (currently amended) Apparatus of claim 28 wherein said at least one tuner further comprises a thumbscrew.

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Claim 30 (currently amended) Apparatus of claim 28 wherein said at least one tuner further comprises a continuously variable element [for continuously varying]to continuously vary the tension in said at least one string.

Claim 31 (currently amended) Apparatus of claim 28 wherein said at least one tuner adjusts the position of said anchor.

Claim 32 (currently amended) Apparatus of claim 23 further comprising:  
a nut, and  
a bridge, [ ]  
wherein said nut comprises said first critical point and said bridge  
comprises said second critical point,  
wherein said at least one anchor is adjacent said nut opposite said second  
critical point.

Claim 33 (currently amended) Apparatus of claim 23 further comprising:  
a nut, and  
a bridge, [ ]  
wherein said nut further comprises said first critical point and said bridge  
further comprises said second critical point,  
wherein said at least one anchor further comprises said nut opposite said  
second critical point.

Claim 34 (currently amended) Apparatus of claim 23 wherein said at least one  
[additional separate means ]third portion further comprises an L-shaped  
[lever]elongated member.

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Claim 35 (currently amended) Apparatus of claim 22 further comprising:

a nut, and

at least one bridge,

wherein said nut further comprises said first critical point and said at least one bridge further comprises said second critical point for said at least one string,

wherein said at least one anchor is adjacent said at least one bridge opposite said first critical point and moveable therewith about said axis that is transverse to said axis of said at least one string.

Claim 36 (currently amended) Apparatus of claim 22 further comprises:[including]

a nut, and

at least one bridge,

said nut further comprises[ing] said first critical point and said at least one bridge further comprises[ing] said second critical point for said at least one string, said bridge having a surface extending generally in the direction of said axis of said at least one string, wherein said at least one anchor further comprises said at least one bridge opposite said first critical point.

Claim 37 (currently amended) Apparatus of claim 36 wherein said second critical point has at least one location on said at least one bridge, said at least one bridge having a curved surface, said at least one bridge being pivotably displaceable about said axis that is transverse to the axis of said at least one string, said second critical point travels a critical distance on said curved surface of said at least one bridge changing said at least one location of said

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second critical point [and simultaneously balances ]establishing[the]  
harmonic tuning [with ]at said [proper ]playing pitch as said at least one  
bridge is pivoted by [raising ]tensioning said at least one string [from an  
untensioned condition ]to said at least one pitch tuning.

Claim 38 (currently amended) Apparatus of claim 37 wherein said tuning  
adjustment device further comprises at least one lock to impede pivoting  
said at least one [additional separate means ]third portion in a second  
direction.

Claim 39 (currently amended) Apparatus of claim 38 wherein said at least one  
lock allows pivoting of said at least one [second separate means ]third  
portion in said first direction while impeding pivoting of said at least one  
[additional separate means ]third portion in said second direction.

Claim 40 (currently amended) Apparatus of claim 22[32] wherein said at least  
one third portion further comprises an elongated lever.

Claim 41 (currently amended) Apparatus of claim 39 wherein said tuning  
adjustment device further comprises a tremolo.

Claim 42 (currently amended) Apparatus of claim 37[9] wherein said tuning  
adjustment device further comprises a fulcrum tremolo.

Claim 43 (currently amended) Apparatus of claim 22[41] wherein said tuning  
adjustment device further comprises a macro-tuner.

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Claim 44 (currently amended) A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head,
- said at least one string having a first end and a second end,[ means]
- a first mechanism on said head [for supporting and forming]to support and
- form a first critical point for said at least one string,[ means]
- a second mechanism on said body [for supporting and forming]to support
- and form a second critical point for said at least one string,
- said first end secured to said head and said second end secured to said
- body,
- at least one string anchor located opposite said body on said head, and
- [wherein said stringed musical instrument comprises]
- a[n] tuning adjustment device combining
  - a [means ]first portion to [for ] quickly tension[bringing] said
  - at least one string to [proper ]playing pitch from an
  - untensioned condition at said at least one of several
  - [preset ]pitch tunings[ quickly],
  - a [separate means ]second portion [whereby ] to fine tune said
  - at least one string [is fined tuned ]at said [proper
  - ]playing pitch, and
  - at least one gripping portion intermediate said nut and said at
  - least one string anchor for gripping said at least one
  - string,

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wherein said first portion, said second portion, and said at least one gripping portion and are in close proximity to each other.

Claim 45 (currently amended) A stringed musical instrument comprising:

a body,

a neck extending outwardly from said body,

a fulcrum tremolo,

a head located opposite said body on said neck,

at least one string extending from said body to said head, said at least one string having a first end and a second end, [means]a first mechanism on said head [for supporting and forming]to support and form a first critical point for said at least one string, [ means]

a second mechanism on said fulcrum tremolo [for supporting and forming]to support and form a second critical point for said at least one string,

said first end secured to said head and said second end secured to said fulcrum tremolo,

said fulcrum tremolo [including ]further comprising:

a bearing [means ]portion [for adjustably mounting]to adjustably mount said fulcrum tremolo on said body for pivotal displacement, said bearing [means ]portion [including ]further comprising at least one bearing assembly, said bearing assembly further comprising[es] at least a portion of a ball bearing surface.



Claim 46 (currently amended) Apparatus of claim 45 wherein said bearing assembly [includes ]further comprises at least one shaft connected to said fulcrum tremolo.

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Claim 45 A stringed musical instrument comprising:

a body,

a neck extending outwardly from said body,

a fulcrum tremolo,

a head located opposite said body on said neck,

at least one string extending from said body to said head, said at least one string having a first end and a second end, a first mechanism on said head to support and form a first critical point for said at least one string,

a second mechanism on said fulcrum tremolo to support and form a second critical point for said at least one string,

said first end secured to said head and said second end secured to said fulcrum tremolo,

said fulcrum tremolo further comprising:

a bearing portion to adjustably mount said fulcrum tremolo on said body for pivotal displacement, said bearing portion further comprising at least one bearing assembly, said bearing assembly further comprising at least a portion of a ball bearing surface.

Claim 46 Apparatus of claim 45 wherein said bearing assembly further comprises at least one shaft connected to said fulcrum tremolo.